

# 32-35 Gresse Street

## Acoustic Survey Report

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## **1. Executive summary**

Munro Acoustics were commissioned to carry out a noise survey at 32-35 Gresse Street to establish existing background noise levels at the proposed site of new air conditioning plant. The survey results are used to establish allowable plant noise levels to meet the requirements set by the London Borough of Camden. The predicted noise level at the nearest residences due to noise from the air conditioning plant does meet the Council's requirements.

## 2. Introduction

Munro Acoustics Ltd was commissioned to carry out a noise survey at 32-35 Gresse Street, London. The purpose of the survey was to ascertain the lowest background noise level ( $L_{A90,15min}$ ) during the proposed hours of operation of new plant equipment. The predicted noise level at the nearest sensitive residential windows due to the new plant equipment was calculated and compared to the requirements set by Camden Council.

## 3. Noise criteria

32-35 Gresse Street falls in the Borough of Camden. The requirement for noise from new plant in this area is that the  $L_{Aeq,15min}$  noise level due to the new plant should be at least 5 dB below the lowest measured background noise level,  $L_{A90,15min}$ , at 1m from the nearest residential window.

If the source is tonal or impulsive then the noise should be 10dB below the lowest measured  $L_{A90,15min}$ .

## 4. Site and surroundings

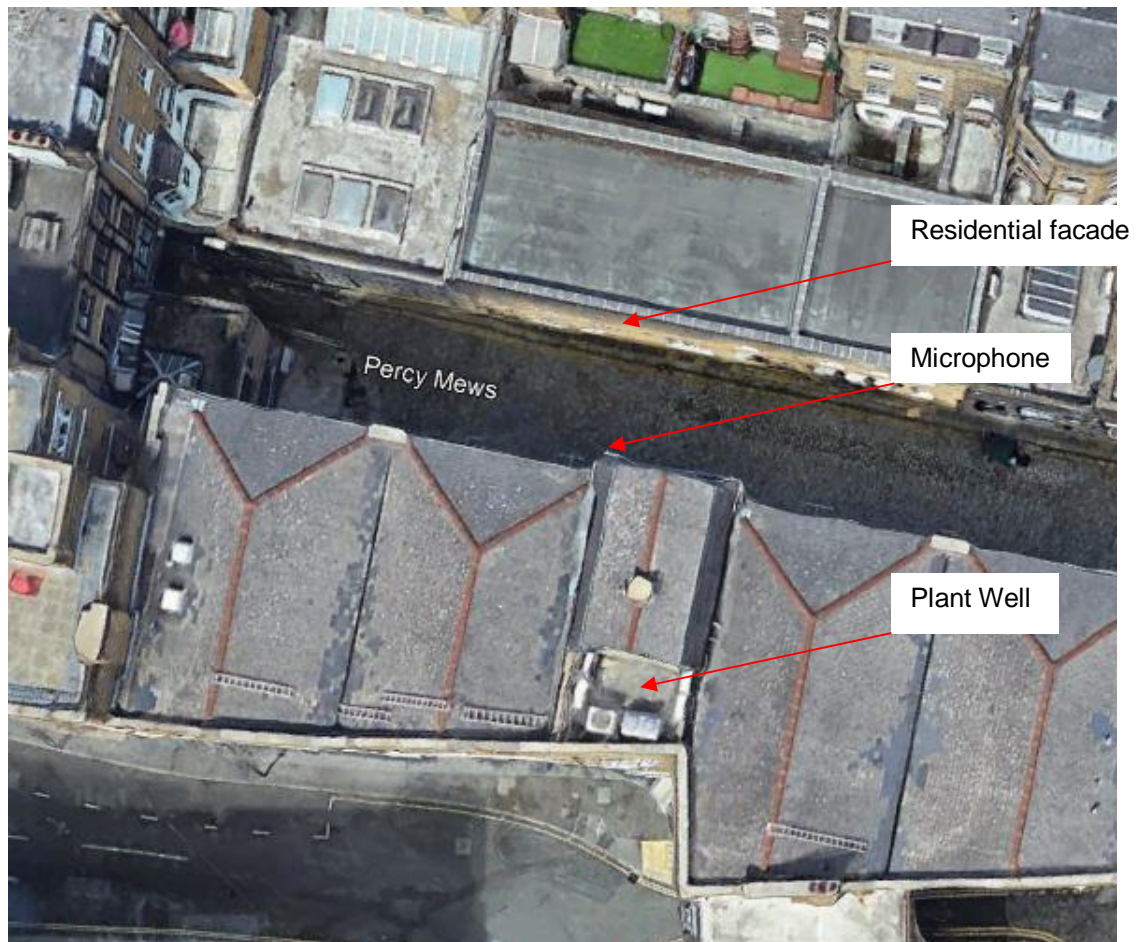
32-35 Gresse Street is a four storey commercial building situated at the northern end of Gresse Street. All immediately adjacent buildings are commercial premises. The building has a plant well on the roof towards the front façade of the building.

The nearest residential property is a two storey house in Percy Mews to the rear of the building, where the direct distance is around 18m. There is no direct line of sight between the plant and the residential windows as the building itself forms a considerable barrier.

The proposed new plant consists of:

1x new Mitsubishi PUZ-ZM50VKA condenser and 1x Fujitsu AJY108LELAH condenser to go into the existing plant well on the roof of the building.

The new plant will operate 08.00 to 20.00 weekdays only.



**Figure 2** Plan showing plant location & nearest residential façade

## 5. Noise survey

An unmanned noise survey was carried out at the top of the rear facade of the building overlooking Percy Mews.

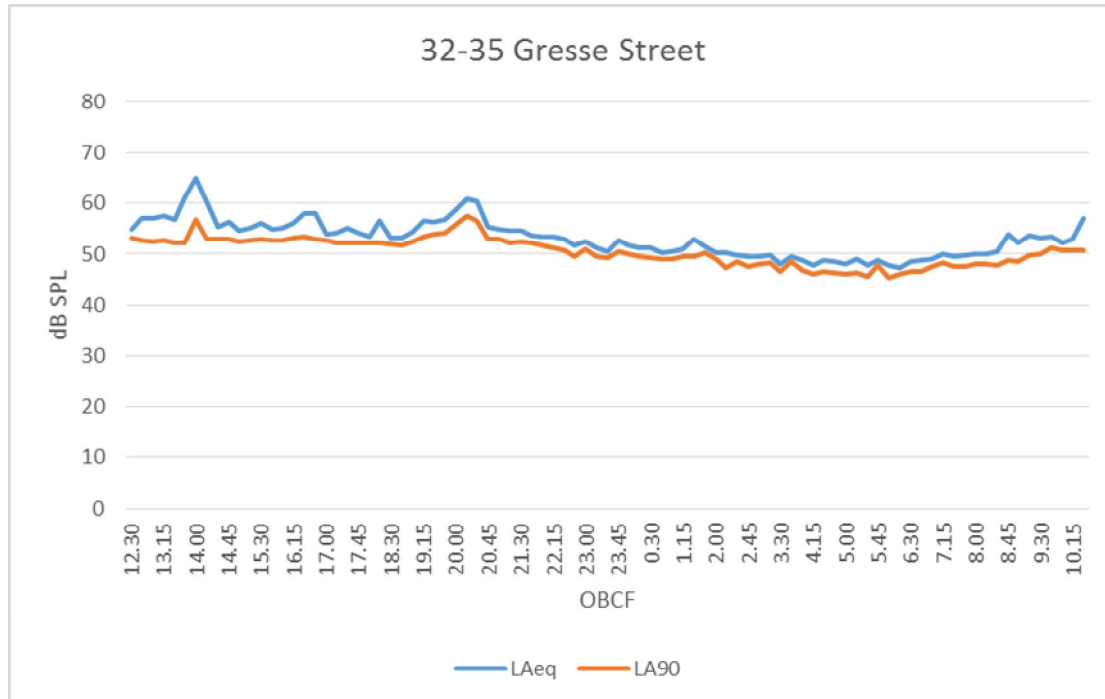
A Norsonic NOR140 sound level meter with NOR1212 weatherproof microphone housing was used for the noise survey. The equipment was checked for calibration using a B&K 4231 calibrator before and after the measurement, no significant drift was detected.

Continuous measurements in 15 minute sections were taken from 12:30 on Tuesday 4<sup>th</sup> December 2018 to 10:30 on Wednesday 5<sup>th</sup> December 2018.

Weather conditions during the survey were dry with low wind speeds. Met Office wind speed records are shown in Appendix 3.

The lowest recorded  $L_{A90,15\text{min}}$  during the relevant operating times of the survey was 48dBA at 08:30 on Wednesday 5<sup>th</sup> December 2018.

Full noise survey data are given in Appendix 1.



**Figure 3** Noise survey data

## 6. Noise Assessment

The lowest background noise level recorded during this survey was  $L_{A90,15\text{min}}$  48dBA at 08.30 on Wednesday 5<sup>th</sup> December 2018. In order to meet the requirements of the London Borough of Camden, noise from the plant ( $L_{Aeq}$ ) should be at least 5 dB below this, i.e.  $L_{Aeq} \leq 43$  dBA.

Using noise data from the manufacturer, the predicted noise level from the plant at the nearest residential receiver is  $L_{Aeq}$  20dB which is well below the requirement.

The noise from the plant does meet the Council's requirements. The manufacturer's noise data does not indicate any significant tonal behaviour.

The new plant should be mounted on appropriate anti-vibration mounts to minimise ingress of vibration into the building.

See Appendix 2 for detailed calculations

## **7. Conclusion**

Based on manufacturer's data and this noise survey, the proposed new plant meets Camden Council's requirements with a considerable safety margin.

## 8. Appendix 1 Survey data

Tuesday 4th December 2018

Time	LAeq	LA90
12.00		
12.15		
12.30	54.9	53.1
12.45	57.0	52.7
13.00	57.1	52.5
13.15	57.5	52.6
13.30	56.8	52.1
13.45	61.1	52.1
14.00	65.0	56.8
14.15	60.3	52.9
14.30	55.3	52.8
14.45	56.2	52.9
15.00	54.6	52.5
15.15	55.0	52.7
15.30	56.0	52.9
15.45	54.8	52.7
16.00	55.1	52.6
16.15	56.1	53.2
16.30	57.9	53.3
16.45	57.9	53.0
17.00	53.9	52.6
17.15	54.1	52.1
17.30	55.2	52.3
17.45	54.1	52.2
18.00	53.5	52.2
18.15	56.5	52.2
18.30	53.1	52.0
18.45	53.2	51.8
19.00	54.4	52.5
19.15	56.5	53.3
19.30	56.3	53.8
19.45	56.8	54.1
20.00	58.8	55.7
20.15	60.8	57.5
20.30	60.4	56.6
20.45	55.4	52.8
21.00	54.8	52.9
21.15	54.7	52.3
21.30	54.7	52.4
21.45	53.7	52.1
22.00	53.3	51.6
22.15	53.4	51.2
22.30	52.9	50.7
22.45	51.8	49.6
23.00	52.4	50.9
23.15	51.3	49.6
23.30	50.4	49.2
23.45	52.6	50.5

Wednesday 5th December 2018

Time	LAeq	LA90
0.00	51.8	49.9
0.15	51.1	49.4
0.30	51.2	49.3
0.45	50.3	49.1
1.00	50.5	49.0
1.15	51.0	49.4
1.30	52.8	49.5
1.45	51.4	50.2
2.00	50.2	49.0
2.15	50.3	47.3
2.30	49.8	48.5
2.45	49.5	47.6
3.00	49.5	48.1
3.15	49.7	48.2
3.30	48.0	46.7
3.45	49.4	48.6
4.00	48.7	46.8
4.15	47.9	46.2
4.30	48.9	46.5
4.45	48.6	46.3
5.00	48.0	46.0
5.15	49.1	46.4
5.30	47.9	45.6
5.45	48.7	47.7
6.00	47.9	45.5
6.15	47.3	46.0
6.30	48.6	46.5
6.45	48.8	46.6
7.00	49.0	47.5
7.15	50.1	48.4
7.30	49.4	47.6
7.45	49.8	47.6
8.00	50.0	48.0
8.15	50.1	48.0
8.30	50.6	47.8
8.45	53.8	48.7
9.00	52.1	48.5
9.15	53.7	49.7
9.30	53.2	50.0
9.45	53.4	51.1
10.00	52.1	50.7
10.15	53.0	50.7
10.30	57.0	50.8
10.45		
11.00		
11.15		
11.30		
11.45		

## 9. Appendix 2 Calculations

Manufacturers data

SPL @ 1m	63	125	250	500	1k	2k	4k	8k	dBA
Mitsubishi PUZ-ZM50VKA	58	50	45	44	40	37	32	31	46
Fujitsu AJY108LELAH	66	63	61	59	56	53	46	41	61

Note: Spectrum data for the Fujitsu unit was not available and is estimated from the supplied single figure value and a typical condensor spectrum

	63	125	250	500	1k	2k	4k	8k
Source (both units)	67	63	61	59	56	53	46	41
Directivity	3	3	3	3	3	3	3	3
Distance 18m	-25	-25	-25	-25	-25	-25	-25	-25
Barrier correction	-10	-13	-16	-18	-22	-24	-26	-28

Total SPL at receiver	35	28	23	19	12	7	-2	-9
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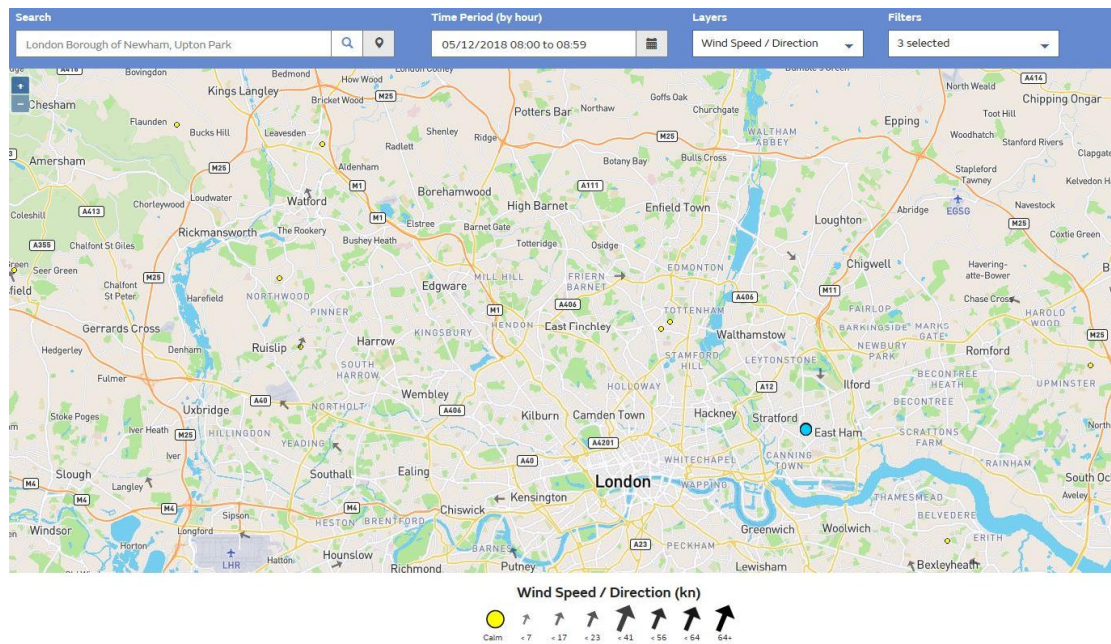
Total SPL at receiver 20 dBA

Target 43 dBA

Barrier Calculation 3.5 m effective height

	63	125	250	500	1000	2000	4000	8000
he/l	0.6	1.3	2.5	5.1	10.2	20.3	40.7	81.4
45 deg into shadow	-10	-13	-16	-18	-22	-24	-26	-28

## 10. Appendix 3 Wind Speed records



Wind speed record for 08:00 -08:59 on 5<sup>th</sup> December 2018 showing wind speed calm or below 7knts

## 11. Appendix 4 Definitions

Decibel (dB)	The unit used to measure sound levels.
SPL	Sound pressure level
SWL	Sound power level
A-weighting	A network of corrections applied to all relevant frequencies to simulate the frequency response of the human ear.
$L_{Aeq}$	The equivalent continuous A-weighted noise level over a given time period
$L_{A90}$	The A-weighted noise level exceeded for 90% of the measurement period. This is frequently referred to as the 'background' noise.